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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,216	11/13/2003	Peter N. Gray	BTEC 9693	8452
321	7590	01/10/2006	EXAMINER	
SENNIGER POWERS ONE METROPOLITAN SQUARE 16TH FLOOR ST LOUIS, MO 63102			ZACHARIA, RAMSEY E	
			ART UNIT	PAPER NUMBER
			1773	

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/712,216

Applicant(s)

GRAY ET AL.

Examiner

Ramsey Zacharia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 October 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-68 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-68 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 14-22, 37-45, and 60-68 are rejected under 35 U.S.C. 102(a) as being anticipated by Sanderson et al. (WO 03/018431 A1).

Sanderson et al. teach a sulfur dioxide gas generating device using in the packaging industry (page 1, lines 9-21). The device has a layer comprising a gas generating compound dispersed in a polymer matrix between a carrier sheet and cover sheet (page 3, lines 27-34). In one embodiment the device contains 0.1-0.3 kg of sodium metabisulphite per kg of polymer (page 8, lines 25-28).

Regarding claims 15, 20, 21, 38, 43, 44, 61, 66, and 67, the carrier and/or cover sheets meet the limitations of these claims since they would be expected to release gas (at least through decomposition) upon exposure to a sufficiently high amount of energy.

### *Claim Rejections - 35 USC § 103*

3. Claims 1, 2, 4, 6-9, 13, 23, 24, 26, 27, 29-32, 36, 46, 47, 49, 50, 52-55, and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Opperman et al. (ZA 9602517 A).

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Note: because ZA 9602517 A was not available at the time of this action, the Derwent and CAPLUS abstracts of ZA 9602517 A are attached.

Opperman et al. teach a gas generating device comprising a monolithic body having particulates dispersed in a plastic matrix. The particles may be sodium metabisulphite to generate SO<sub>2</sub>. The plastic may be polyvinyl chloride.

The available abstracts are silent as to the concentration of the particulates within the matrix. It is possible that the full text of Opperman et al. discloses this concentration.

Since the concentration of particulates determines the amount of gas that will be generated by the device, the concentration of particulates is a result effective variable. As such, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the amount of particulates in the device of Opperman et al., since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

4. Claims 3, 5, 25, 28, 48, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Opperman et al. (ZA 9602517 A) in view of Aamodt et al. (U.S. Patent 6,325,969).

Opperman et al. teach all the limitations of claims 3, 5, 25, 28, 48, and 51, as outlined above, except for the presence of a second compound that generates chlorine dioxide. It is possible that the full text of Opperman et al. discloses the presence of such a compound.

Aamodt et al. teach that chlorine dioxide gas is useful for killing biological contaminants, such as fungi (column 2, lines 37-41). The chlorine dioxide may be formed from a composition

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which absorbs water from the air and releases chlorine dioxide over time (column 2, lines 42-49).

One skilled in the art would be motivated to use a combination of the gas generating solids of Opperman et al. and Aamodt et al. in the device of Opperman et al. because both produce gases upon exposure to water that act as fungicides. It has been held that it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose. The idea of combining them flows logically from their having been individually taught in the prior art. See MPEP 2144.06.

5. Claims 10-12, 33-35, and 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Opperman et al. (ZA 9602517 A) in view of Steele et al. (WO 94/10233)

Opperman et al. teach all the limitations of claims 10-12, 33-35, and 56-58, as outlined above except for the properties of the plastic and use of a polyolefin as the plastic material. Opperman et al. do teach the use of polyvinyl chloride as the plastic matrix material. It is possible that the full text of Opperman et al. discloses these limitations.

Steele et al. is directed to a sulfur dioxide producing polymeric film (abstract). Suitable polymers include polyvinyl chloride and low density polyethylene (page 4, lines 24-34).

That is, Steele et al. show that polyvinyl chloride and low density polyethylene are known in the art as functionally equivalent materials for the production of gas generating polymer films. Therefore, because these two polymers were art-recognized equivalents at the

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time the invention was made, one of ordinary skill in the art would have found it obvious to substitute low density polyethylene for polyvinyl chloride.

Regarding claims 10, 11, 33, 34, 56, 57, low density polyethylene has a melt index of between about 0.5 and about 8.0 and melt temperature of between about 105 and about 150 °C. Melt flow is reported as between 0.22 (which reads on the lower limit of about 0.5) and 6.5 and the melting point is reported as between 108-121 °C.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-68 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney, can be reached at (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Ramsey Zacharia**  
**Primary Examiner**  
**Tech Center 1700**